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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/707,697	11/07/2000	Hong Heather Yu	9432-000112	9565

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EXAMINER

TRUONG, THANHNGA B

ART UNIT	PAPER NUMBER
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2135

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/707,697

Applicant(s)

YU, HONG HEATHER

Examiner

Thanhnga B. Truong

Art Unit

2135

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/15/2005 (Amendment).
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-13 and 19-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-13, and 19-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendment filed on March 15, 2005 has been entered. Claims 1-9, 11-13, 19-36 are pending. Claims 10 and 14-18 are cancelled by the applicant and claims 1, 22, and 36 are also amended by the applicant.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6-9, 11-13, 19-27, 29-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US 6,314,192), and further in view of Ding et al (US 5,699,361), and further in view of Yu et al (US 6, 456,726).

a. Referring to claim 1:

i. Chen teaches:

(1) obtaining a first set of authentication data; said first set of authentication data being based on data contained in the first media channel; obtaining a second set of authentication data; said second set of authentication data being based on data contained in the second media channel; hiding the first set of authentication data in the first media channel and the second media channel; and hiding the second set of authentication data in the first media channel and the second media channel [i.e., **"Watermark signal" means a signal to be embedded in a host signal. For example, an 8-bit identification number may be a watermark signal to be embedded in a host signal, such as the illustrative 256.times.256 pixel picture. As indicated by the definition of "signal" above, it will be understood that a watermark signal need not be an identification number or mark, but may be any type of signal whatsoever. Thus, the term "watermark" is used more broadly herein than in some other applications, in which "watermark" refers generally to identification marks. Also, a watermark signal need not be a binary, or other**

Art Unit: 2135

digital, signal. It may be an analog signal, or a mixed digital-analog signal. A watermark signal also may have been subject to error-correction, compression, transformation, or other signal processing. The watermark signal may also be determined, in whole or in part, based on the host signal. Such dependence may occur, for example, in an application in which watermarking provides authentication of a signal, as when a digital signature is derived from the host signal and embedded therein, and the extracted digital signature is compared to a signature that is similarly derived from the host signal (column 8, line 66 through column 9, line 19). In addition, "Watermark-signal value" means one of a set of two or more potential values of a watermark-signal component or of a co-processed group of watermark-signal components. That is, such value may be a scalar or a vector value. For example, watermark-signal values include either the value "0" or "1" of the illustrative one bit of the 8-bit watermark identification signal, or the values "00," "01," "10," or "11" of a co-processed two bits of such signal. With respect to a vector value, the watermark-signal value may be, for example, a vector having a length that represents the RGB value of one or more components of the watermark signal. Other types of values of watermark-signal components include color; intensity; texture; amplitude; phase; frequency; real numbers; other integers; imaginary numbers; text-character code; parameters of a linear or non-linear representation of the watermark signal; and so on. Although a watermark-signal component has two or more potential watermark-signal values, it will be understood that the value of such component need not vary in a particular application. For example, the first bit of the illustrative 8-bit watermark identification signal may generally, or invariably, be set to "0" in a particular application (column 9, lines 25-45). Furthermore, referring to Figures 1 and 2, embedding a watermark signal into a host signal, thereby generating a composite signal, optionally enabling the composite signal to be transmitted over a communication channel (column 2, lines 57-60; and column 6, lines 54-59)];

ii. Although Chen does not explicitly mention the use of multimedia channel, Ding teaches:

(1) It is desirable to provide multimedia communications on networks such as the network 10. Multimedia communications include communications of combinations of motion video, still video, voice and other audio, text/transactional communication and control messages in interactive and non-interactive fashions. These types of communications have different characteristics. Text/transactional communication is bursty; such communication exhibits a high average to peak bandwidth ratio. Video and audio communications are stream-oriented; they require a rather continuous bandwidth and have an average bandwidth which is typically much higher than that of the text/transactional communications **(column 4, lines 17-29)**.

iii. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to:

(1) clearly specify the communication channel in Chen or have applied Ding's multimedia communications in Chen for defining different types of communications channels and for allocating channels of the predefined types **(column 5, lines 9-10 of Ding)**.

iv. The ordinary skilled person would have been motivated to:

(1) clearly specify the communication channel in Chen or have applied Ding's multimedia communications in Chen since the dynamic allocation step enables the user or application to create a multimedia session with different combinations of communication types with different quantities and qualities thereof. Thus, the user is provided the best of both worlds; a variety of predefined channel types are provided for different kinds of communications, which the user may structure and vary in order to create a multimedia session of the users choice **(column 6, lines 15-22 of Ding)**.

v. The combination of Chen and Ding teach the claimed subject matter, but they are silent about wherein the active data stream is inserted into a high capacity region of a visual channel, while other control data embedded into a relatively high robustness region of the visual channel, the high capacity region having

Art Unit: 2135

higher capacity and lower robustness than the high robustness region. On the other hand, Yu et al teaches:

(1) The scope of Yu et al's invention encompasses using multi-level data hiding techniques on individual data layers. Multi-level data hiding techniques involve selecting an embedding scheme for a data layer based upon the quantity of distortion to which the data layer is subjected. Multi-level data hiding begins with classifying the available embedding schemes into categories based upon whether knowledge of the original host media will enhance detection performance (column 2, lines 61-67). Furthermore, as an example, spread spectrum embedding is applied to mid-band coefficients to attain high robustness with low capacity, and relationship enforcement is applied to low-band coefficients to attain high capacity with only moderate robustness (column 3, lines 19-23). In addition, with the help of the additional hidden control information, the detector is better able to tell whether there are errors and further correct the errors in the transmitted hidden active data. In addition, the synchronization data helps in aligning the data for more accurate extraction. A higher level of robustness is thus achieved (column 3, lines 45-51).

vi. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to:

(1) combine the teaching of Yu et al into Chen/Ding's system for hiding data in media and more specifically to a system for multi-layer data hiding in multimedia signals (**column 1, lines 7-8 of Yu et al**).

vii. The ordinary skilled person would have been motivated to:

(1) combine the teaching of Yu et al into Chen/Ding's system since it is desirable to have the access control bits hidden as robust as possible. A robust data hiding algorithm is selected for embedding the access control bits. A spread spectrum scheme is used to hide the access control data with some error correction and other control bits coupled with the access control data (primary hidden data) into the spectrum domain. This way, maximum robustness of the access control bits is assured. (**column 4, lines 13-22 of Yu et al**).

b. Referring to claims 2, 4, 8-9, 11-13, 19, 25, 27, 31-35:

Art Unit: 2135

i. These claims have limitations that is similar to those of claim 1, thus they are rejected with the same rationale applied against claim 1 above.

c. Referring to claim 3:

i. Chen further teaches:

(1) generating an identification mark for the first media channel based on a signature of the first media channel, the identification mark defining the first set of authentication data and enabling synchronization between the first media channel and the second media channel [i.e., **"Watermark signal" means a signal to be embedded in a host signal. For example, an 8-bit identification number may be a watermark signal to be embedded in a host signal, such as the illustrative 256.times.256 pixel picture. As indicated by the definition of "signal" above, it will be understood that a watermark signal need not be an identification number or mark, but may be any type of signal whatsoever (column 8, line 66 through column 9, line 5). Furthermore, Information extractor 202 synchronizes such composite signal so that the location of particular portions of such signal may be determined (column 9, line 66 through column 10, line 2)]].**

d. Referring to claim 6:

i. Chen further teaches:

(1) obtaining an active data stream, the active data stream having executable content and defining the first set of authentication data [i.e., **host signal 101 may include a continuing signal stream into which a watermark signal is embedded at various points in the stream (column 15, lines 62-64)]].**

e. Referring to claims 7, 29-30:

i. These claims have limitations that is similar to those of claim 6, thus they are rejected with the same rationale applied against claim 6 above.

f. Referring to claims 20-21, 23-24:

i. These claims have limitations that is similar to those of claims 1, 3, and 19, thus they are rejected with the same rationale applied against claims 1, 3, and 19 above.

g. Referring to claim 22:

i. This claim has limitations that is similar to those of claims 1 and 19, thus it is rejected with the same rationale applied against claims 1 and 19 above.

h. Referring to claim 26:

i. This claim has limitations that is similar to those of claim 3, thus it is rejected with the same rationale applied against claim 3 above.

i. Referring to claim 36:

i. This claim has limitations that is similar to those of claims 1 and 21, thus it is rejected with the same rationale applied against claims 1 and 21 above.

4. Claims 5, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US 6,314,192), and further in view of Ding et al (US 5,699,361) and Numao et al (US 6,512, 835 B1).

a. Referring to claim 5:

i. Chen, Ding, and Yu et al teach the claimed subject matter except for:

(1) calculating a one way hash value for the first media channel; and mapping the hash value onto an identification mark for the first media channel

ii. However, Numao teaches:

Referring to the equation of column 9, line 25, H1 is a hash function. This K byte hashed value is used as the initial state value S.sub.0 for data hiding. The hashed value is simply used as an initial value for data hiding, so it must only be ensured that different outputs result from different inputs. Thus, the hashed value has no particular meaning. The operation results in the output of a value indicating the characteristics of the array, that is, the hashed value is uniquely determined on the basis of the contents of all the array elements and may depend on the contents of the overall array. If the message data is the "DATAHIDING" shown in FIG. 3(b), the output of the hash function H1 from the exclusive OR of the data indicating all the alphanumeric characters (the data in the array value m[i]) is the state

Art Unit: 2135

value S.sub.0. The remainder if I (the number of image regions) relative to the state value S.sub.0 is the position p.sub.0. This allows the state value S.sub.0 and the position p.sub.0 to be obtained as the initial state values (**column 9, lines 44-57**).

iii. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to:

(1) include the hashed value in Chen's authentication signal (as modified) for preventing a third person from modifying message data (**column 2, lines 62-63 of Numao**).

iv. The ordinary skilled person would have been motivated to:

(1) include the hashed value in Chen's authentication signal (as modified) since it has been difficult for conventional methods to effectively prevent a third person from erasing the original sign to make the source unknown or writing a different sign over the original sign to act as if he or she was the author. It is therefore an object to provide a data hiding method of hiding media data in message data and a data extraction method of extracting the hidden data wherein message data is dispersively hidden in media data such as an image or sound to prevent a third person from modifying the message data easily (**column 2, lines 55-64 of Numao**).

b. Referring to claim 28:

i. This claim has limitations that is similar to those of claim 5, thus it is rejected with the same rationale applied against claim 5 above.

Response to Argument

5. Applicant's arguments filed March 15, 2005 have been fully considered and the new ground(s) of rejection is addressed above.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed

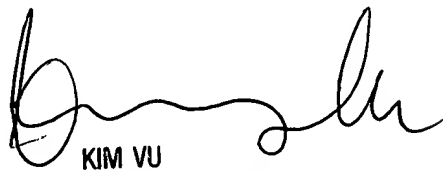
Art Unit: 2135

within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanhnga (Tanya) Truong whose telephone number is 571-272-3858.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on 571-272-3859. The fax and phone numbers for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.


KIM VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 210

TBT

May 29, 2005